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Historical Perspectives History of CDC

CDC, an institution synonymous around the world with public health, will be 50 years old on July 1. The Communicable Disease Center was organized in Atlanta, Georgia, on July 1, 1946; its founder, Dr. Joseph W. Mountin, was a visionary public health leader who had high hopes for this small and comparatively insignificant branch of the Public Health Service (PHS). It occupied only one floor of the Volunteer Building on Peachtree Street and had fewer than 400 employees, most of whom were engineers and entomologists. Until the previous day, they had worked for Malaria Control in War Areas, the predecessor of CDC ([Figure 1](#)), which had successfully kept the southeastern states malaria-free during World War II and, for approximately 1 year, from murine typhus fever. The new institution would expand its interests to include all communicable diseases and would be the servant of the states, providing practical help whenever called.

Distinguished scientists soon filled CDC's laboratories, and many states and foreign countries sent their public health staffs to Atlanta for training. Any tropical disease with an insect vector and all those of zoological origin came within its purview. Dr. Mountin was not satisfied with this progress, and he impatiently pushed the staff to do more. He reminded them that except for tuberculosis and venereal disease, which had separate units in Washington, D.C., CDC was responsible for any communicable disease. To survive, it had to become a center for epidemiology.

Medical epidemiologists were scarce, and it was not until 1949 that Dr. Alexander Langmuir arrived to head the epidemiology branch. He saw CDC as "the promised land," full of possibilities. Within months, he launched the first-ever disease surveillance program, which confirmed his suspicion that malaria, on which CDC spent the largest portion of its budget, had long since disappeared. Subsequently, disease surveillance became the cornerstone on which CDC's mission of service to the states was built and, in time, changed the practice of public health.

The outbreak of the Korean War in 1950 was the impetus for creating CDC's Epidemic Intelligence Service (EIS). The threat of biological warfare loomed, and Dr. Langmuir, the most knowledgeable person in PHS about this arcane subject, saw an opportunity to train epidemiologists who would guard against ordinary threats to public health while watching out for alien germs. The first class of EIS officers arrived in Atlanta for training in 1951 and pledged to go wherever they were called for the next 2 years. These "disease detectives" quickly gained fame for "shoe-leather epidemiology" through which they ferreted out the cause of disease outbreaks.

The survival of CDC as an institution was not at all certain in the 1950s. In 1947, Emory University

gave land on Clifton Road for a headquarters, but construction did not begin for more than a decade. PHS was so intent on research and the rapid growth of the National Institutes of Health that it showed little interest in what happened in Atlanta. Congress, despite the long delay in appropriating money for new buildings, was much more receptive to CDC's pleas for support than either PHS or the Bureau of the Budget.

Two major health crises in the mid-1950s established CDC's credibility and ensured its survival. In 1955, when poliomyelitis appeared in children who had received the recently approved Salk vaccine, the national inoculation program was stopped. The cases were traced to contaminated vaccine from a laboratory in California; the problem was corrected, and the inoculation program, at least for first and second graders, was resumed. The resistance of these 6- and 7-year-olds to polio, compared with that of older children, proved the effectiveness of the vaccine. Two years later, surveillance was used again to trace the course of a massive influenza epidemic. From the data gathered in 1957 and subsequent years, the national guidelines for influenza vaccine were developed.

CDC grew by acquisition. The venereal disease program came to Atlanta in 1957 and with it the first Public Health Advisors, nonscience college graduates destined to play an important role in making CDC's disease-control programs work. The tuberculosis program moved in 1960, immunization practices and the MMWR in 1961. The Foreign Quarantine Service, one of the oldest and most prestigious units of PHS, came in 1967; many of its positions were soon switched to other uses as better ways of doing the work of quarantine, primarily through overseas surveillance, were developed. The long-established nutrition program also moved to CDC, as well as the National Institute for Occupational Safety and Health, and work of already established units increased. Immunization tackled measles and rubella control; epidemiology added family planning and surveillance of chronic diseases. When CDC joined the international malaria-eradication program and accepted responsibility for protecting the earth from moon germs and vice versa, CDC's mission stretched overseas and into space.

CDC played a key role in one of the greatest triumphs of public health: the eradication of smallpox. In 1962 it established a smallpox surveillance unit, and a year later tested a newly developed jet gun and vaccine in the Pacific island nation of Tonga. After refining vaccination techniques in Brazil, CDC began work in Central and West Africa in 1966. When millions of people there had been vaccinated, CDC used surveillance to speed the work along. The World Health Organization used this "eradication escalation" technique elsewhere with such success that global eradication of smallpox was achieved by 1977. The United States spent only \$32 million on the project, about the cost of keeping smallpox at bay for 2-1/2 months.

CDC also achieved notable success at home tracking new and mysterious disease outbreaks. In the mid-1970s and early 1980s, it found the cause of Legionnaires disease and toxic-shock syndrome. A fatal disease, subsequently named acquired immunodeficiency syndrome (AIDS), was first mentioned in the June 5, 1981, issue of MMWR. Since then, MMWR has published numerous follow-up articles about AIDS, and one of the largest portions of CDC's budget and staff is assigned to address this disease.

Although CDC succeeded more often than it failed, it did not escape criticism. For example, television and press reports about the Tuskegee study on long-term effects of untreated syphilis in black men created a storm of protest in 1972. This study had been initiated by PHS and other organizations in 1932 and was transferred to CDC in 1957. Although the effectiveness of penicillin as a therapy for syphilis had been established during the late 1940s, participants in this study remained untreated until the study was brought to public attention. CDC also was criticized because of the 1976 effort to vaccinate the U.S. population against swine flu, the infamous killer of 1918-19. When some vaccinees developed Guillain-Barre syndrome, the campaign was stopped immediately; the epidemic never

occurred.

As the scope of CDC's activities expanded far beyond communicable diseases, its name had to be changed. In 1970 it became the Center for Disease Control, and in 1981, after extensive reorganization, Center became Centers. The words "and Prevention" were added in 1992, but, by law, the well-known three-letter acronym was retained. In health emergencies CDC means an answer to SOS calls from anywhere in the world, such as the recent one from Zaire where Ebola fever raged.

Fifty years ago CDC's agenda was noncontroversial (hardly anyone objected to the pursuit of germs), and Atlanta was a backwater. In 1996, CDC's programs are often tied to economic, political, and social issues, and Atlanta is as near Washington as the tap of a keyboard ([Figure 2](#)). Adapted for MMWR by Elizabeth W. Etheridge, Ph.D., from her book, *Sentinel for Health: A History of the Centers for Disease Control*. Berkeley, California: University of California Press, 1992.

Editorial Note

Editorial Note: When CDC's name changed in 1970, from the Communicable Disease Center to the Center for Disease Control, CDC scientists were poised to accept new challenges. The most notable of the agency's many achievements in the following 10 years was its role in global smallpox eradication, a program that finally succeeded because of the application of scientific principles of surveillance to a complex problem. In the realm of infectious diseases, CDC maintained its preeminence, identifying the Ebola virus and the sexual transmission of hepatitis B, and isolating the hepatitis C virus and the bacterium causing Legionnaires disease. The Study of the Effectiveness of Nosocomial Infection Control (SENIC) was the most expensive study the agency had ever undertaken and proved for the first time the effectiveness of recommended infection-control practices. Other studies included identification of the association of Reye syndrome with aspirin use, the relation between liver cancer and occupational exposure to vinyl chloride, and the harmful effects of the popular liquid protein diet.

The 1980s institutionalized what is considered to be a critically important scientific activity at CDC -- the collaboration of laboratorians and epidemiologists. The decade began with the national epidemic of toxic-shock syndrome, documentation of the association with a particular brand of tampons, and the subsequent withdrawal of that brand from the market. CDC collaboration with the National Center for Health Statistics (NCHS) resulted in the removal of lead from gasoline, which in turn has markedly decreased this exposure in all segments of the population. The major public health event of the 1980s was the emergence of AIDS. CDC helped lead the response to this epidemic, including characterization of the syndrome and defining risk factors for disease.

CDC became involved in two very large epidemiologic studies during the 1980s. First, the Cancer and Steroid Hormone Study conducted in collaboration with the National Cancer Institute assessed the risks for breast, cervical, and ovarian cancers associated with both oral contraceptives and estrogen replacement therapy. Second, at the request of Congress, CDC undertook a series of studies of the health effects of service in Vietnam on veterans and their offspring, which led to a landmark contribution of the laboratory -- the development of a serum test for dioxin able to measure the toxicant in parts per quadrillion. This decade also introduced scientifically based rapid assessment methods to disaster assistance and sentinel health event surveillance to occupational public health. Epi Info, a software system for the practice of applied epidemiology, was introduced and now has been translated into 12 languages for tens of thousands of users globally. Finally, during the 1980s, NCHS was moved to CDC, further enhancing CDC's information capabilities to meet national needs.

The 1990s have been characterized by continuing applications of CDC's classic field-oriented epidemiology, as well as by the development of new methodologies. For example, the disciplines of

health economics and decision sciences were merged to create a new area of emphasis -- prevention effectiveness -- as an approach for making more rational choices for public health interventions. In 1993, the investigation of hantavirus pulmonary syndrome required a melding between field epidemiology and the need for sensitivity to and involvement of American Indians and their culture. Similarly, the response to global problems with Ebola virus and plague underscore the importance of adapting these new methodologies. Other major CDC contributions to the world's health include global polio eradication efforts and efforts to prevent neural tube defects. Finally, in October 1992, Congress changed CDC's official name to the Centers for Disease Control and Prevention, to recognize CDC's leadership role in prevention. Today, CDC is both the nation's prevention agency and a global leader in public health. As the world enters the new millennium, CDC will remain the agency ready to address the challenges to its vision of healthy people in a healthy world through prevention.

Editorial Note by: Office of the Director, Epidemiology Program Office, CDC.

Figure_1

FIGURE 1. Malaria Control in War Areas, Henry Rose Carter Laboratory — Savannah, Georgia, 1944



[Return to top.](#)

Figure_2

FIGURE 2. CDC headquarters on Clifton Road — Atlanta, 1996



[Return to top.](#)

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